

**Annual Presentation to
Unisys**

Systems Integration

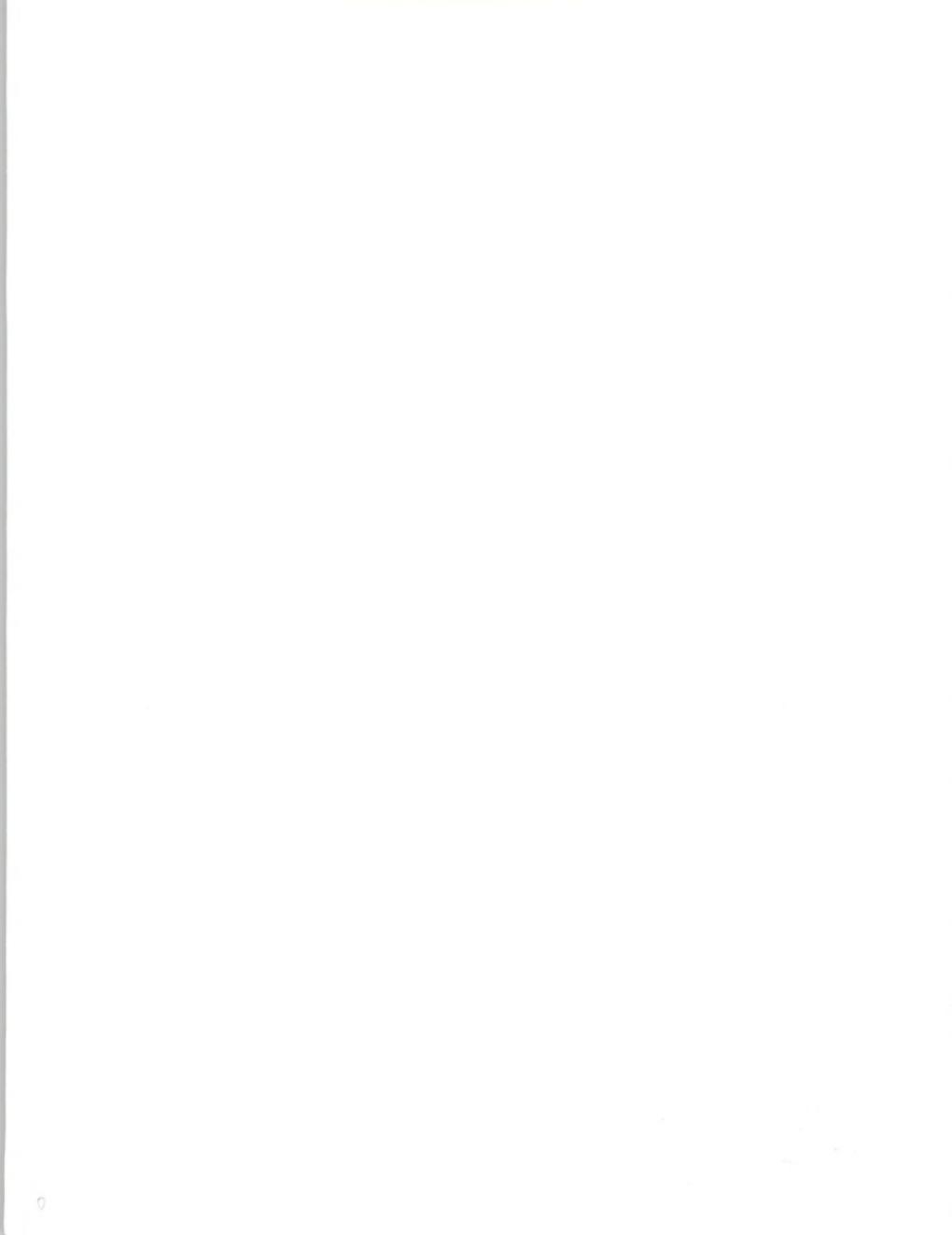
Presented by: Dennis Wayson, Vice President

INPUT
1280 Villa Street, Mountain View
CA 94041-1194
(415) 961-3300



Systems Integration Annual Presentation

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Overview

- Definitions
- Market Forecasts—Commercial/Federal
- Expenditures by Industry
- SI—Driving Forces/Issues

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SIOS-2



Overview

- Project Structure/Composition
- Key Competitors—Commercial/Federal
- 1988 Key Developments
- INPUT's Analysis/Future Trends

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SIOS-7

Unisys

- Competitive Perceptions
- Strengths and Weaknesses
- Leverage Points/Positioning
- Conclusions and Recommendations

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Sources of Data

- "Buyer Issues" Research Data Base
- SI Project Data Base/Analysis
- 22 In-Depth Vendor Interviews
- INPUT 1988-1993 Market Forecast

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SI Market Definition

- **Integrated** Solution to a Multidisciplinary Information Systems Requirement
 - Multiple Vendors
 - Multiyear Schedules
 - Prime Contractor Assumes Full Risk

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SIOS-3

Differences Between System Integrators and Turnkey System Vendors

Systems Integrators	Turnkey Systems
Strategic Design & Consulting	Tactical Consulting
Multi-Year Effort	Single Year Time Span
High Level Complexity	Modest Complexity

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Differences Between System Integrators and Turnkey System Vendors

Systems Integration	Turnkey Systems
SW Development	Software Products
High Cost	Moderate Cost
Large Project Management Skills	

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Similarities Between System Integrators and Turnkey Systems Vendors

- Prime Contractors Role**
- Multiple Vendors Involved**
- Equipment Delivery**
- Software Customization**
- Installation, Training, and Support**
- Post-Installation Support**

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Systems Integration Market Forecast 1988-1993

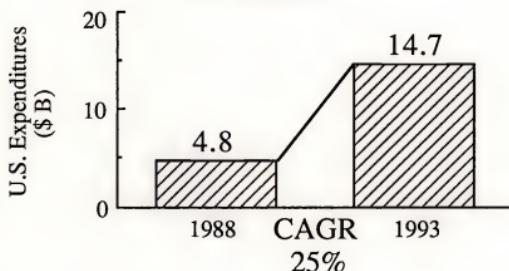
- Federal
- Commercial
- Industry Sectors

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Systems Integration Market Forecast

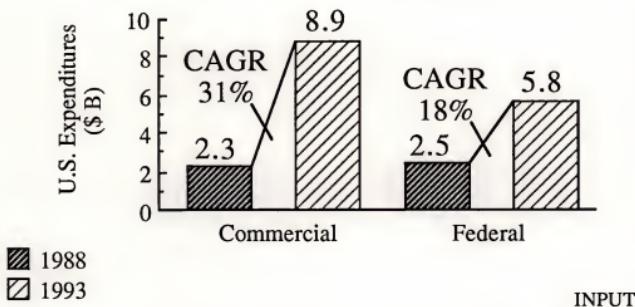


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Systems Integration Market Forecast



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SIOS-12



Key Factors Commercial SI Markets

Positive:

- Rising Demand for Connectivity
- Major Rebuilding of Infrastructure
- Growing Trend Toward User Management

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SIOS-13a

Key Factors Commercial SI Markets

Positive:

- Globalization of Competitive Pressure
- Growing Complexity of Applications

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SIOS-13b



Key Factors Commercial SI Markets

Negative:

- "In House" Competitive Threat
- Growing Concerns over Maintenance Issues
- Organizational Instability
- "Wait and See"—Track Records

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Key Factors Federal SI Markets

Positive:

- Demand for Productivity Improvement
- Shortage of Technical Staff
- Shared Implementation Risks
- Trend Toward Technology Upgrades

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Key Factors Federal SI Markets

Negative:

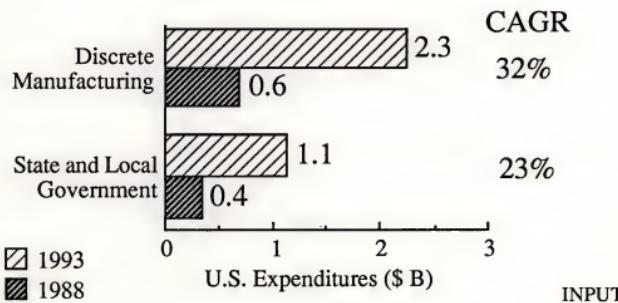
- Deficit and Budget Pressures
- Systems Maintenance Resource Burden
- Slow Standards Implementations
- Extended Implementation Schedules

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Systems Integration Expenditures by Industry 1988-1993



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Key Factors In Discrete Manufacturing Industry

Positive:

- Foreign Competition Fosters Automation
- Continuing Capital Equipment Investment
- Larger Sector, Extensive Project Expenditures

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SIOS-18a



Key Factors In Discrete Manufacturing Industry

Positive:

- Communications Network Integration Needs
- Response Needed to Inventory Controls of Distributors

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SIOS-18b



Key Factors

In Discrete Manufacturing Industry

Negative:

- IBM Dominates Hardware Component
- Tendency to Build Rather than Buy
- Some Negative Experience with CSI
- Industry and CSI Experience Prerequisite

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Key Factors

In State and Local Government Market

Positive:

- Continued Demand for Information Services
- Move Toward In-House Data Processing
- Shortfall of Qualified In-House Staff

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SIOS-19a



Key Factors In State and Local Government Market

Positive:

- Increasing CSI Opportunities with FM Options
- Increasing Network and Resource Sharing Demands

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SIOS-19b



Key Factors

In State and Local Government Market

Negative:

- Dispersed Market (82,000 Government Units)
- Emphasis on Local Vendors

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Key Factors

In State and Local Government Market

Negative:

- Impact of Federal Budget Deficit Controls
- Interest in Small Turnkey Solutions (VARs)

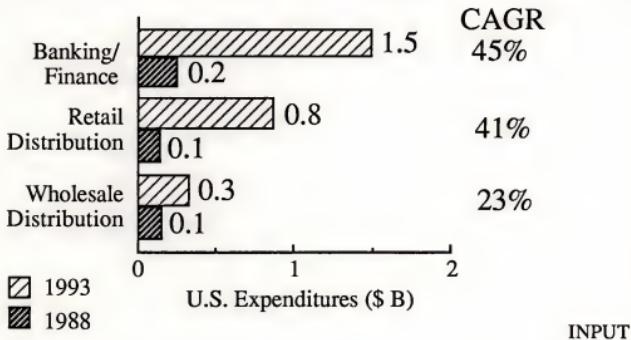
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SIOS-19d



Systems Integration Expenditures by Industry, 1988-1993



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Key Factors In Banking/Finance Industry

Positive:

- Shift to Merchant Banking
- Time-Sensitive Information Requirements
- Growing Body of PC-Based End Users
- Technical Innovation Desired

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SIOS-21ab



Key Factors In Banking/Finance Industry

Negative:

- Parochial View of In-House Capabilities
- Opportunities Hard to Locate
- Industry and Application Experience Required

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SIOS-21c



Key Factors In Banking/Finance Industry

Negative:

- Platform-Based System Preference
- Network Cost Limits

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SIOS-21d



Key Factors In Retail Distribution Industry

Positive:

- Shift to Financial Controls
- Increasing Use of POS and Optical Technology
- Strong Interest in Customer Service
- Network Design and Project Management Needed

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Key Factors In Retail Distribution Industry

Negative:

- Infrequent User of Outside Services
- Smaller than Average Project Expenditures
- Prevalence of Small Firms
- Low Profit Margins

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SIOS-22c



Key Factors In Wholesale Distribution Industry

Positive:

- Network Requirements
- Potential for EDI Applications
- Strong Interest in Inventory Turnover
- Automation Needed for Survival

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Key Factors In Wholesale Distribution Industry

Negative:

- Infrequent User of Outside Services
- Smaller than Average Project Expenditures
- Widely Different Submarkets
- Broad Applications Challenges

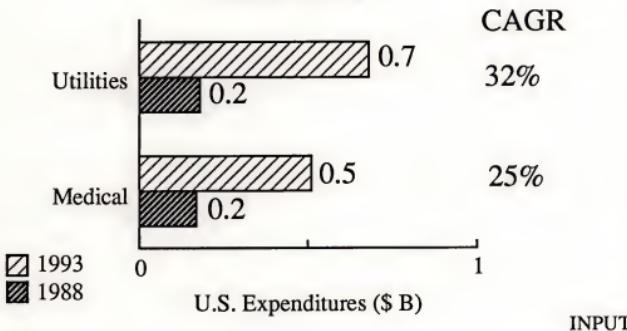
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Expenditures by Industry 1988-1993



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Key Factors In Utilities Industry

Positive:

- Increasing Competitive Use of Technology
- Hardware/Software Obsolescence
- Automation of Repetitive Tasks
- Automated Remote Control Applications

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SIOS-25a



Key Factors In Utilities Industry

Negative:

- Day-to-Day Orientation of IS
- Limited Number of Establishments
- Financial Constraints
- Modular, Rather than Total, View of System

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SIOS-25b



Key Factors In Medical Industry

Positive:

- Pressure to Constrain Medical Services Costs
- Defensive Medicine Requirement for More Data
- Hardware Operating at Capacity
- High Use of Outside Contractors

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Key Factors In Medical Industry

Negative:

- Turnkey Systems Vendors Very Active
- Industry Experience and Acceptance Required
- Limited Number of Large Clients
- "Bottom-Line" Financial Limitations
- Fragmented Marketplace

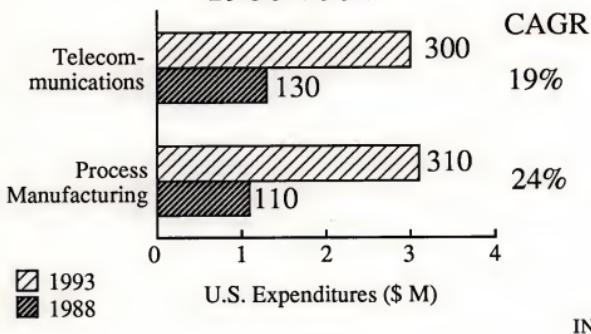
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SIOS-26cd



Expenditures by Industry 1988-1993



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Key Factors

In Telecommunications Industry

Positive:

- Internal Lack of Project Discipline
- Network Integration Opportunities
- Widening Range of Services
 Requiring Support
- Need for EDI and AI-Based Systems

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SIOS-28a



Key Factors In Telecommunications Industry

Negative

- Industry Restructuring Delays Projects
- Perceived In-House Technical Skills
- Highly Unionized Work Force
- Foreign Vendor Interests

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SIOS-28b



Key Factors In Process Manufacturing Industry

Positive:

- Competitive Need to Meet Market Demands
- Need to Improve Operating Efficiencies

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SIOS-29a



Key Factors In Process Manufacturing Industry

Positive:

- Network Design/Integration Requirements
- Need Support for Marketing and Strategic Planning

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SIOS-29b



Key Factors In Process Manufacturing Industry

Negative:

- Few Large Establishments
- Reluctance to Contract for Services
- Process Concentrated in Operations

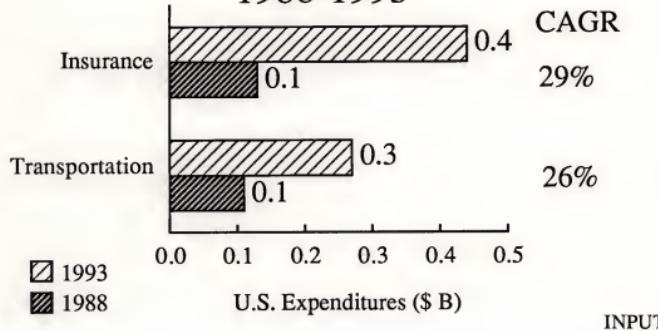
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SIOS-29c



Expenditures by Industry 1988-1993



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Key Factors In Insurance Industry

Positive:

- Replace Aging Data Processing Resources
- New Products (Insurance and Financial) Require Support

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SIOS-31a



Key Factors In Insurance Industry

Positive:

- Need for On-Line Policyholder/
Client Information
- Integrated Network Requirements
- Need On-Line Multifunction Systems

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SIOS-31b



Key Factors In Insurance Industry

Negative:

- Cost Controls Limit New Starts
- Ongoing Industry Restructuring
- Industry-Specific Knowledge/
Experience
- Self-Sufficiency Mentality

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SIOS-31c



Key Factors In Transportation Industry

Positive:

- Competition and Changing Rates
Require Support
- Strong Need for End-to-End Systems

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SIOS-32a



Key Factors In Transportation Industry

Positive:

- Network Design/Integration Requirements
- Move to Independent Traffic Management

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SIOS-32b



Key Factors In Transportation Industry

Negative:

- Few Opportunities Outside of Airline Segment
- Little Growth in IS Expenditures
- Limited Use of Outside Services
- Limited Capital Investment Availability

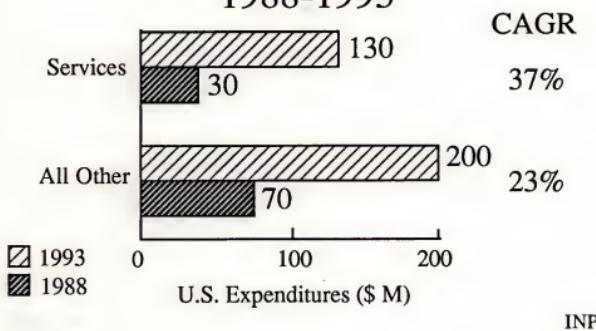
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SIOS-32c



Systems Integration Expenditures by Industry 1988-1993



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SIOS-33



Key Factors In Services Industry

Positive:

- New Demands for Networks and Data Bases
- Key Service Sectors Are Organizing Support Systems
- Recreation Market Creating New Systems Demands

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SIOS-34a



Key Factors In Services Industry

Negative:

- Few Large Enterprises
- Minimal Use of Automation
- Few Large-Scale Opportunities
- In-House Control of Large Client Systems

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SIOS-34b



SI—Driving Forces and Issues

- Major Issues—1988/Buyers
- Major Issues—1988/Vendors
- Technology Drivers—1988

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Major Buyers Issues—1988

- Rising Management Expectations
- User Demands for Increasingly Complex Solutions
- Managing the Technology Investment
- Integration—Data/Applications/Technology
- "Mission Critical" Solutions

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Major Issues—1988

Vendors

- Potential of Catastrophic Failure
- Resistance from In-House Integrators
- Increasing Competition—Confusion
- Competitive Exposure through Specific Project Alliances
- Leading-Edge Technology Risks

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Technology Drivers—1988

- Relational Data Structures
- Open Systems Standards
- Multiplatform Software
- Microcomputer Sophistication
- Communications Product Range

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Project Structure and Composition

- SI Project Data Base 1987-1988
- Distribution and Component Analysis
Federal and Commercial
- SI Project Classifications
- Trends in SI Project Composition

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SIOS-39



SI Project Data Base, 1987-1988

	Commercial	Federal
Projects Analyzed		
Completed	93	35
In Progress	133	56
"Suspects" Resolved and Not Used	115	-
Total	341	91

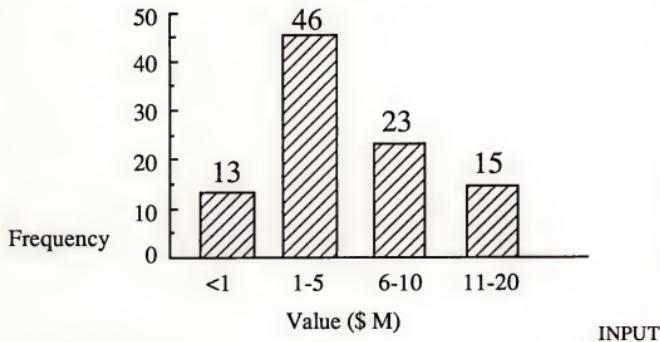
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SIOS-40



Distribution of Commercial Projects by Value

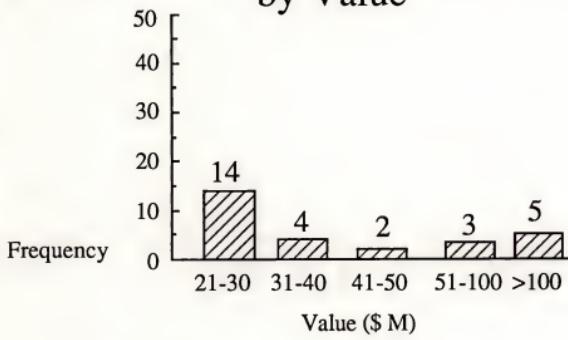


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SIOS-43a



Distribution of Commercial Projects by Value



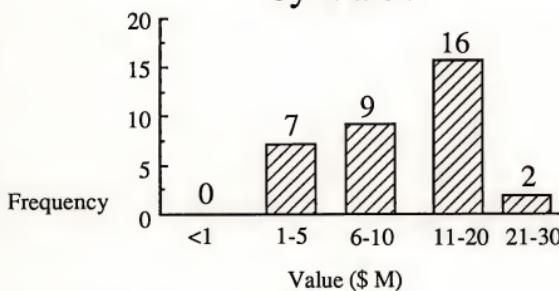
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SIOS-43b



Distribution of Federal Projects by Value



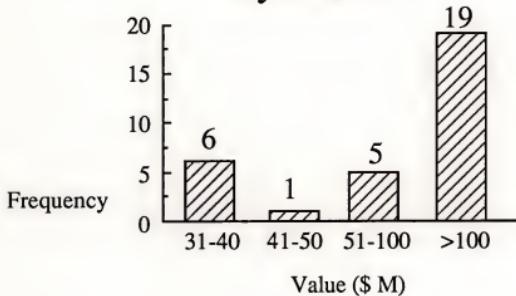
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Distribution of Federal Projects by Value



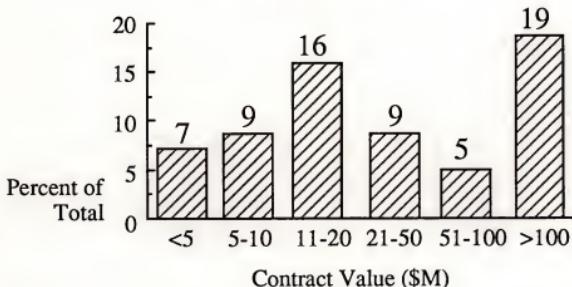
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Distribution of Projects by Value Federal Sector



No. Projects = 65

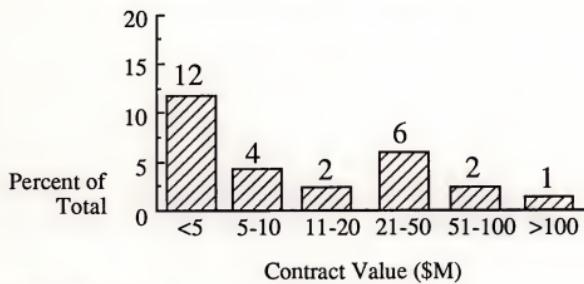
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Distribution of Projects by Value State and Local Sector



No. Projects = 27

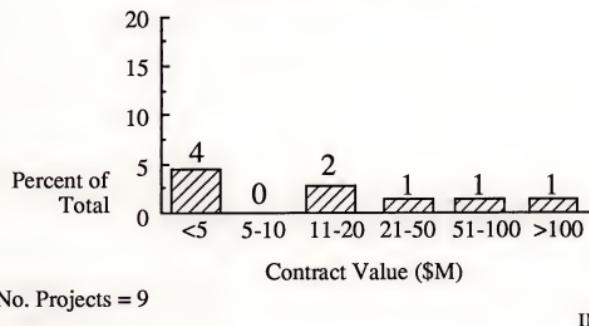
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SIOS-41b



Distribution of Projects by Value Transportation Sector



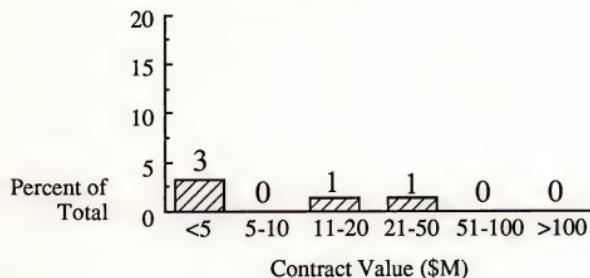
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SIOS-41c



Distribution of Projects by Value Utilities Sector



No. Projects = 5

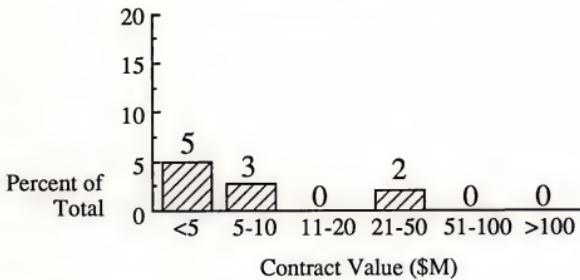
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SIOS-41d



Distribution of Projects by Value Discrete Mfg. Sector



No. Projects = 10

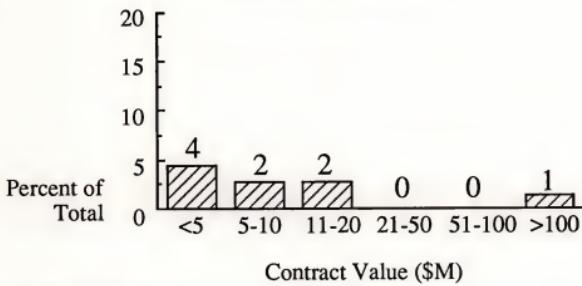
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SIOS-41e



Distribution of Projects by Value Distribution Sector



No. Projects = 9

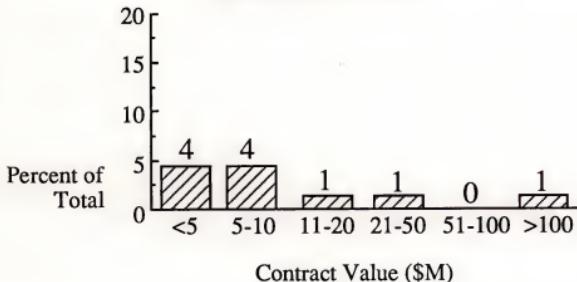
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SIOS-41f



Distribution of Projects by Value Insurance Sector



No. Projects = 11

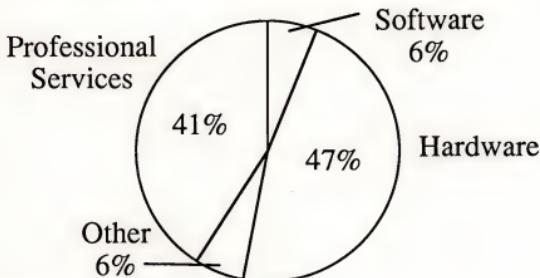
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Expenditures by Component Group Federal Project Sample



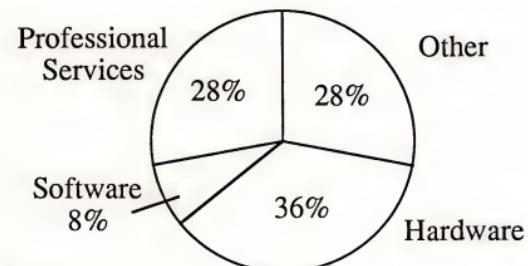
N=56 Projects

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Expenditures by Component Group Commercial Project Sample



N=66 Projects

INPUT

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SI Project Classifications

Applications Level

- Focused on Specific Business Solution
- Driven by Executive/User Management
- Short-Term Payout with High Visibility

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SIOS-45a



SI Project Classifications

Data Level

- Focused on Providing Data Infrastructure
- Driven by IS or Division Management
- Provides Platform for "Suites" of Applications

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SIOS-45b



SI Project Classifications

Network Level

- Focused on Total Delivery Capability
- Almost Universally IS Driven
- Provides Standard Environment/Tools

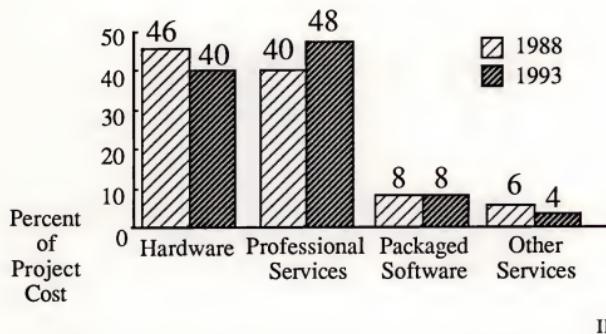
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SIOS-45c



Trends in SI Project Composition

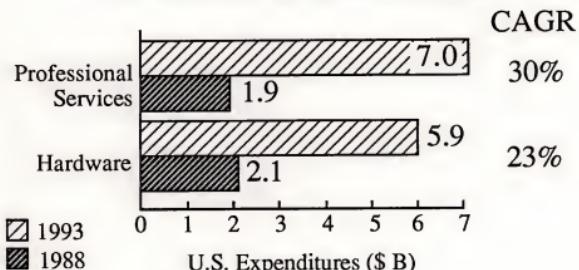


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Systems Integration Market

1988-1993 Component Groups



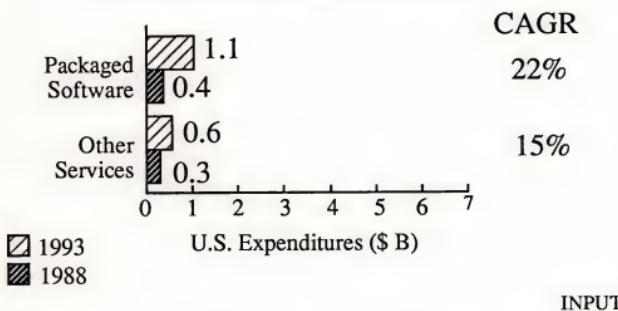
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SIOS-47a



Systems Integration Market 1988-1993 Component Groups



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SIOS-47b



Key Competitors— Commercial/Federal

- Leading SI Vendors and Market Share
- Leading Vendors—An Overview
- SI Vendor Profiles
- Emerging Vendor Trends

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Leading Systems Integration Vendors, Market Shares, 1987

Vendor	U.S. Revenues (\$M)	Market Share (%)
IBM	515	14
EDS	450	12
Andersen Consulting	420	11
Boeing	250	7

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NOTES:

SIOS-49a



Leading Systems Integration Vendors, Market Shares, 1987

Vendor	U.S. Revenues (\$M)	Market Share (%)
CSC	195	5
SAIC	175	5
Grumman	150	4
CDC	130	3

INPUT

NOTES:

SIOS-49b



Leading Systems Integration Vendors, Market Shares, 1987

Vendor	U.S. Revenues (\$M)	Market Share (%)
SHL Systemshouse	115	3
Unisys	100	3
AGS (Nynex)	75	2
58		INPUT

NOTES:

SIOS-49c



Vendor Profiles: Andersen Consulting

- Business Duration
 - 10 Years
- Organization
 - Decentralized, Vertical Market Implementation Staff
- Dedicated Resources
 - 15,000 (Worldwide) Employees in Systems Integration and Professional Services

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SIOS-54.01ab



Vendor Profiles: Andersen Consulting

- Target Industries
 - Aerospace
 - Manufacturing
 - Utilities
 - Distribution
 - Finance

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SIOS-54.02



Vendor Profiles: Andersen Consulting Strengths

- Consulting Expertise, Depth of Staff
- Systems/Product Demonstration Centers
- High-Level Client Contacts

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SIOS-54.03a



Vendor Profiles: Andersen Consulting Strengths

- Growing Reputation as SI Providers
- Reorganization to Focus on Professional Services and SI
- Software Development Methodology

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SIOS-54.03b



Vendor Profiles: Andersen Consulting

Weaknesses

- Possible Cash Constraints
- Perception as Accounting Firm
- Network Management Skills

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SIOS-54.04



Vendor Profiles: Andersen Consulting SI Strategies

- Strong Promotional/Marketing Thrust
- Reorganization for Consulting Focus
- Demonstration Systems/Centers
(Vertical Markets)

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SIOS-54.05a



Vendor Profiles: Andersen Consulting SI Strategies

- Continuing Employee Education
- Focus on Largest Accounts
- Leverage "Complete Solution"
Capabilities

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NOTES:

SIOS-54.05b



Vendor Profiles: DEC

- Business Duration
 - 10 Years
- Organization
 - Centralized Marketing and Promotion
 - Decentralized Execution
- Dedicated Resources
 - Approximately 300

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NOTES:

SIOS-54.06



Vendor Profiles: DEC

- Target Industries
 - Manufacturing
 - Telecommunications
 - Education
 - Aerospace
 - Banking & Finance
 - Health Care
- Unique Capabilities
 - Applications Support Centers
 - Connectivity Products

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SIOS-54.07ab



Vendor Profiles: DEC Strengths

- Integrated Architecture
- Networking Capabilities
- Active Users Group
- Third-Party Software
- Alliances (CIM Especially)

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SIOS-54.08



Vendor Profiles: DEC

Weaknesses

- Lack of Micro & Mainframe Capability
- Modest SI Presence
- Changing Distribution Channels
- Organization for SI

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SIOS-54.09



Vendor Profiles: DEC

- Sample Projects
 - Firestone—CIM, \$21M
 - W. Transportation—Inventory, \$6M
 - Bantam Doubleday—Network Int.,
\$3M

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SIOS-54.10



Vendor Profiles: DEC

- 150 Projects in 1987/88 Time Frame
- Average Size: Small \$1-5M
- Hiring Heavily from Big 8

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SIOS-54.11a



Vendor Profiles: DEC

- Leveraging Network Capabilities
- Missing Project/Development Methodology
- Targeting "Enterprise" Contracts

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NOTES:

SIOS-54.11b



Vendor Profiles: Computer Sciences

- Business Duration
 - 21 Years
- Organization
 - Centralized Marketing and Promotion
 - Decentralized Contract Review/
Approval, Project Management
- Dedicated Resources
 - 2,500

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SIOS-54.12



Vendor Profiles: Computer Sciences

- Target Industries
 - Government
 - Distribution
 - Finance
 - Insurance
 - Telecom Providers
 - Retail
 - Publishing
 - Manufacturing

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NOTES:

SIOS-54.13ab



Vendor Profiles: Computer Sciences

- Target Functions
 - Networking
 - Office Automation
 - Digital Image Handling
 - Facility Management
 - Logistics

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SIOS-54.14



Vendor Profiles: Computer Sciences

Strengths

- Full-Service Provider
- Depth/Diversity of Staff
- Hardware-Independent Vendor
- Reputation for Performance
- Networking

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SIOS-54.15



Vendor Profiles: Computer Sciences Weaknesses

- Small (Relative) Commercial Sector Presence
- Focused on Narrow Markets, in Terms of Current Results

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SIOS-54.16



Vendor Profiles: Computer Sciences Typical Projects

- Dade County Airport: Cargo Information System
- German Bundesbahn: EDI for Railway System
- USAF Stock Control and Distribution
- Cincinnati Gas & Electric: On-line Customer Services System

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SIOS-54.17a



Vendor Profiles: Computer Sciences Typical Projects

- AT&T Trunk Inventory and Control
- Kennedy Space Center: Office Automation
- U.S. Treasury Dept.: Consolidated Data Network

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SIOS-54.17b



Vendor Profiles: IBM

- Business Duration
 - 5+ Years in SI
- Organization
 - Centralized Account Management and Sales
 - Decentralized Contract Approval, Project Control

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SIOS-54.18a



Vendor Profiles: IBM

- Dedicated Resources
 - 6,000-8,000 People in Systems Integration Division (SID)

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SIOS-54.18b



Vendor Profiles: IBM

Strengths

- Market Presence
- Installed Base
- Resource Access
- Long-Term Account Relationships

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SIOS-54.19a



Vendor Profiles: IBM

Strengths

- Full Equipment Range
- Third-Party Suppliers
- Subcontractor Relationships
- Education, Training, Documentation
- Vertical Market Expertise

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SIOS-54.19b



Vendor Profiles: IBM

Weaknesses

- Internal Bureaucracy
- Speed of Response
- Product Orientation
- Nonintegrated Products
- Project Management Methodologies and Skills
- Pricing: Low Flexibility

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SIOS-54.20ab



Vendor Profiles: IBM

SI Strategies

- Stress Advanced Functions: AI, Image Processing, Networking, Connectivity
- Massive Reorganization into SID
- Emphasize Software and Connectivity
- Third-Party SW Leverage
(2500 Programs on AS/400)
- Decentralized Decision Making

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SIOS-54.21ab



Vendor Profiles: IBM

- Over 200 Contracts (Federal and Commercial)
- Average Commercial Value: \$6-7M
- Commercial Range: \$50K-400M

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SIOS-54.22a

Vendor Profiles: IBM

Typical Projects

- Ford Motor Company, Office Systems (\$400M)
- FAA: Advanced System
 - Westpac—4th-Generation Banking Systems
 - Amadeus—European Consortium Airline Reservations System

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NOTES:

SIOS-54.22b



Vendor Profiles: IBM

Typical Projects

- USAA: IMAGE/Folder Management
(Insurance)
- Ford: CIM, Truck Plant
- United Airlines: Joint \$250M Project
for Travel Agents Suspended

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NOTES:

SIOS-54.22c



Vendor Profiles: SAIC

- Business Duration
 - 15 Years
- Organization
 - Entirely Decentralized to Divisions
- Dedicated Resources
 - 150 Commercial, 1500 Federal

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SIOS-54.23



Vendor Profiles: SAIC

Strengths

- Simulation Capabilities

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NOTES:

SIOS-54.24



Vendor Profiles: SAIC

Weaknesses

- Fragmented Divisional Approach
- Primarily Federal Concentration

INPUT

NOTES:

SIOS-54.25



Vendor Profiles: SAIC

Typical Projects

- DoD: Automated Medical Treatment Facilities
- FBI: Automated Fingerprint System
- DoE: Financing Support System
- Middle East: C3 Systems
- USAF: Logistics Center, Sacramento

INPUT

NOTES:

SIOS-54.26ab



Vendor Profiles: EDS

- Organization
 - No Dedicated Structure
- Dedicated Resources
 - Unknown (Estimate 100 People)

INPUT

NOTES:

SIOS-55a



Vendor Profiles: EDS

- Strengths
 - Understand Vertical Targets
 - Technical Skills/Communications
- Weaknesses
 - Image/Limited Alliances

INPUT

NOTES:

SIOS-55b



Vendor Profiles: EDS

- Primary Motivation to Drive FM
- Limited in Alliances
- Potentially Hindered by GM Relationship

INPUT

NOTES:

SIOS-56a



Vendor Profiles: EDS

- Extensive Large Project Management Experience
- Typical Project Size \$5-30M
- About 50 Projects 1987-88

INPUT

NOTES:

SIOS-56b



Vendor Profiles: EDS

- Target Industries
 - Manufacturing
 - Banking/Finance
 - Health Care
 - Telecommunications
 - Distribution
 - State & Local Government
- Unique Capabilities
 - Proven FM Record
 - Network Management

INPUT

NOTES:

SIOS-57ab



Vendor Profiles: EDS

- Sample Projects
 - K-Mart Corporation—POS, \$20M
 - Best Products—Retail/POS, \$25M
 - RVS Insurance—Comprehensive

INPUT

NOTES:

SIOS-58



1988 Key Developments

- DEC Formalizes SI Strategy
Enterprise Services
- IBM Organizes to Address SI Market
- ORACLE Forms Federally Oriented
SI Division

INPUT

NOTES:

SIOS-59



1988 Key Developments

- NYNEX Buys AGS
- EDS Faces SI Project Difficulties
- Formation of Andersen Consulting Division
- AA Defections to Saatchi & Saatchi—ICS

INPUT

NOTES:

SIOS-60



Future Trends

- New Competitors Will Enter Market
Large, Small & Niche
- Market "Hype" Will Blur Definitions
- Increased Centralization of SI
"Product" Management within Vendors
- Increased Development of Proprietary
Technologies/Methodologies

INPUT

NOTES:

SIOS-61ab



Future Trends

- Growing Investment in Marketing/
Promotion
- Entrance of Off-Shore Competitors
in U.S. Market
- Telecommunications Companies

INPUT

NOTES:

SIOS-62a



Future Trends

- Non-SI Vendors Will Develop Formal Strategies for Market Participation as Subcontractors

Apple

- Number of Acquisitions Will Grow

INPUT

NOTES:

SIOS-62b



Emerging Vendor Trends by Class

Vendor Class	Additional Capabilities	Strategic Target
Professional Services	Data/ Network	Vertical Industry Niches
Software	Prof. Services (PS)	Applications Niches

INPUT

NOTES:

SIOS-63a



Emerging Vendor Trends by Class

Vendor Class	Additional Capabilities	Strategic Target
Hardware	Software/PS	Full Range
Communications	Software/PS	Network
Systems Suppliers	Data/Network	Applications/ Network

INPUT

NOTES:

SIOS-63b



Systems Integration Recommendations

- Present Full-Service Image
- Leverage/Promote Proprietary Technology
- Establish Strategic Partnerships (Alliances)
- Initiate and Maintain Overall Account Control
- Maintain Project Management Continuity

INPUT

NOTES:

SIOS-64ab

